

THE
PSYCHOLOGICAL BULLETIN

MIND AS A CATEGORY OF SCIENCE.

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Any one who has kept up with the progress of psychological theory during the past decade will have noticed a growing disposition on the part of both psychologists and physiologists to find some category which will evade the question-begging distinction of the mental and physical. On the one hand, the attitude-psychology, which seeks to interpret even the remoter ratiocinative processes in terms of reaction to stimulus, lays stress upon function and use and seeks to state all the phenomena of consciousness in motor terms. The comparative psychologist and neurologist find it possible under cover of such terms as behavior, action-systems, and psychophysical process to slip from one field into the other without prejudicing their conclusions by any explicit metaphysical theory. On the other hand, the radical and immediate empiricist ask us to turn from our thin intellectualizing back to the concrete thickness of our sensible experience in the belief that the richest content is also the most real.

The necessity for this shift in our methodological procedure has grown, on the negative side, out of the flagrant failure of philosophy to provide even a satisfactory working hypothesis of the relations of mind and matter, and, on the positive side, out of the mutual attrition of the categories of the adjacent sciences of neurology and psychology. The rapid growth of the allied sciences of animal, child, and social psychology, dealing as they do with the so-called objective manifestations of mind, has introduced an almost entirely new nomenclature into a field in which the introspective method formerly held undisputed sway. Without being clearly conscious of what was happen-

ing, a group of scientific men engaged within the confines of these hyphen-sciences, has come gradually to look upon mental phenomena from a fresh angle and, if you please, with a new and significant equipment of preconceptions. Mind in terms of muscle and movement; changes in time and space; coördinations of leg and wing; response, behavior, physiological activity of some sort: such have been the terms of the discussion.

Here is a pronounced departure from the introspective analysis of the inner, to an extrospective analysis of the outer mind, without any deliberate raising of the traditional difficulty of how these are related. The technique of these sciences has not yet reached the point of completely undermining or superseding this time-honored dualism, but it is taking great leaps in that direction. Description in terms of process seems destined soon to smooth out the irritating contrasts of content which appear when static cross-sections are substituted for the living longitudinality of experience. The keen surgical knife of scientific method will soon lop off the hideous teratological growths which the disease of metaphysics has fastened upon us.

Now this change in the procedure of psychological science presupposes a new conception of the nature of mind. A more detailed exposition of this conception has been presented by the writer in the pages of his *Principles of Pragmatism*. It is the purpose here simply to recapitulate that argument and to show its bearing on the vexed problem of psychogenesis, the literature of which in the past has been so interesting to the metaphysician but so profitless to the psychologist.

The gist of the theory is that mental are vicarious substitutes for physical phenomena when the latter are for any reason inadequate, in their existing form, for the purposes of the progressive growth of experience. Objects, events, relations, anything whatever from your breakfast to your religious convictions, are thrown into the region we call mental whenever these fail, relatively, in their present form, to evoke the response requisite for the irresistible demand to move forward in experience. The mental, in other words, must be explained in terms of its function in relation to construction and reconstruction. This process of organization involves the backward as well as the forward reference: we go back to gather momentum for going forward. Accordingly all the phenomena of retention, revival, reproduction — in a word, instinct, habit, and memory — are as vitally related to this process as the facts of impulse, attention, and thought.

Without going into the extended consideration of these retrospec-

tive and prospective phases of the technique of mentation, we may turn at once to the fundamental mark of all mental process in either phase. It is this: the mental is the substitution of a part-process for the whole activity, of a terminal or initial stage for the entire process; or, in terms of content, it is the use of a fragment for the whole. All symbols, for this reason, bear the mind's impress. A word, a book, a machine, an institution, a civilization, history itself, is but a sign of the thing signified — a thin intellectualist substitute, as Professor James would say, for some more viscous wealth of immediate experience.

So much for broad generalization. Let us illustrate. I am engaged in horticulture, raising cabbages, let us say. Now this may be a quite objective rule-of-thumb occupation involving the application of a minimum of mentality. But if one aims at scientific gardening, even so simple a vocation may present innumerable difficulties arousing emotional and stimulating intellectual response. The problem is: What are these, the mental facts of emotion and intellection, in terms of the total experience of cabbage culture? Taking the intellectual process as admitting of readier analysis, the answer is that thought-about-cabbages is always and simply an arrested or anticipated or modified motor-operation-upon-cabbages. All personal reflections on the subject, as I straighten out my spinal apophyses after prolonged spading, and all the thin lucidity of the Experiment Station Bulletins excogitated for my instruction, as I find sometimes to my vexation, are but the tag ends or uncertain beginnings of the really prodigious vocation itself. "Lime lightens adobe soils," "Only leguminous crops provide their own nitrate," "Secure a surface mulch by constant cultivation," — such maxims, packed tight with mentality, are the permanent possibilities of many cabbage crops. Why? Because they represent crucial part-processes in the larger activity.

These mental products, which at first glance seem so separate from the process, have in fact been built up originally in connection with the concrete activity, their apparent isolation in the form of verbal precepts representing merely their relative remoteness from the problem which was the occasion of their first excogitation.

To one who has worked out some of these problems in his own experience it will be clear, not only that all such practical precepts, but that all scientific and philosophical knowledge whatever has arisen primarily in accordance with the principle of vicarious response. Some activity proceeds with difficulty. The feature which seems to be recalcitrant is extracted for analysis and revision. The whole situation is

then reëxperienced as thus reconstituted. A coördination fails to adapt in the given environment. Some phase of the motor response is modified. The total coördination is then repeated with the subordinate alteration. Your spade falls on the stiff sun-baked soil as upon a side-walk. This turns the energy at your disposal back upon the springs and sources of the ineffectual activity: you cultivate your ideas, for the time being, in place of the soil, by the aid of reflection and treatises on the subject, until you can 'get your spade in' again or, as we say, 'see' the difficulty. Then you return to the soil itself and thrust in your objective spade as a complete overt act where in idea and word you have already anticipatively put it.

This illustration is homely and crude enough, but it may serve perhaps to set forth what is meant by the principle of vicarious response. All thinking and speaking are an abortive or anticipative doing, what we call mentality being built up chiefly in terms of ideas and words. The same principle applies of course to emotion, the vestigial motor and dynamogenic character of which is even more conspicuous. But confining ourselves here to the intellectual aspect of the matter, and in this instance to the mentality represented in words, it appears that language is an almost perfect illustration of the theory. The word, whether regarded as a mental fact or as an objective vehicle of communication, is an intermediate part-process taken as standing for, to the end of controlling, a larger dynamic whole of experience. A full, rich, immediate experience has no need for words; recourse to language is an infallible sign of incompleteness or disharmony. Be, be it, be not thought of it but it! Such is the mysticism of immediacy. To think, to recall, to idealize and reason, are ever the call of the fragment for the whole, the struggle of the unborn emotion or idea for final deliverance in an act. The resurgent past and the onrushing future are created by the demands of the turbulent present. All the elaborate processes of mind are but the karyokinetic configurations by which experience subdivides in the search for more experience.

The key to psychogenesis accordingly is at hand. All psychology, whether of the adult or child, whether individual or social, human or animal, has this common problem: What is the soul in terms of hands and feet, what is mind in terms of motor process? If mind is but the machinery by which the content of experience undergoes metamorphosis into a different mode, then the whole problem of the science of mind is the problem of interpreting the facts and laws of this transformation in terms of the content transformed. That content is the whole uni-

verse, the whole circle of objective nature or the so-called outer mind, anything and everything that has or does or can enter as a factor into experience.

The problem of psychology in the case of the animal and the child is not different in principle from the problem of adult human psychology. The alleged uniqueness of the so-called introspective method is a figment. Introspection is neither a method nor is it unique. It is nothing but a name for one's naturally acute interest in a universal process where and when it affects himself. It reveals no peculiar facts and no special laws. All method presupposes observation and generalization of processes common to more than one individual and, as such, is characteristic of all science. Adult introspective psychology is as truly study of behavior and motor process as biology or comparative psychology. The only difference is in the richness or remoteness of the date.

The clew to psychogenetic analysis, as of all psychological analysis, is, by the study of motor response, to discover the intermediate steps by which this has grown out of and leads up to other motor response; in a word, to interpret larger wholes of organic behavior in terms of part-processes. The aim of experiment is to isolate these part-processes as much in animal as in human psychology. The analogy from human introspection is irrelevant or misleading, prejudicing the whole enquiry by an initial assumption of like mental processes. Everything goes to suggest that mentality in the invertebrates, for example, is a distinct genus, and nothing would more handicap investigation in this field than the vicious appeal to analogical inference.

PSYCHOLOGICAL LITERATURE.

ETHICS.

The Classical Moralists. Selections Illustrating Ethics from Socrates to Martineau. Compiled by BENJAMIN RAND. Boston, New York, and Chicago: Houghton Mifflin Company. Pp. ix + 797.

The appearance of this book with its companion volume on *Modern Classical Philosophers*, and Bakewell's *Source Book of Ancient Philosophy*, all of them coming from the press within three years, and all of them having a common method, would seem to indicate either that there is an increased popular demand that the main teachings of the great thinkers be made available in as perspicuous a form as possible; or that among those whose business it is to teach philosophy closer attention is being paid to the pedagogy of instruction, and that they will welcome the services of the expert editor in preparing the material for class room use.

It is, I am sure, well understood that the 'case method,' as Dr. Rand calls it, is not anything new in the pedagogy of philosophy, — at least with our better teachers and in our foremost colleges and universities. There have been on the market for many years, notably from the presses of the Open Court and Cassell companies, cheap editions of the philosophical classics. The only questions suggested by the appearance of the *Source Book*, therefore, are those of cost and convenience.

There is one special recommendation of such work as Dr. Rand has accomplished that is patent to every one. He has included not only in the present volume, but also in its companion, translations of works that are not otherwise available in an English dress. Some of these have been made specially for his volume, and they have been uniformly well done. Whether, therefore, the teacher uses the collection as a whole, and this is an individual matter, he will have to send the student to these books for those selected portions which are not otherwise or as usefully available. For this service Dr. Rand already has the thanks of many teachers, and the field of service has by no means been exhausted by what has been included in the two volumes. In each volume the traditional highway of intellectual effort in their respective subjects has been covered; but there is really no trunk line

in such matters, and we may hope that with his extensive knowledge of the bibliography of philosophy and psychology, Dr. Rand will place us still further in his debt by giving us, at some future time, other volumes which shall include translations of some of the omitted masterpieces.

The material in the present volume is grouped under three main heads: Ancient, covering 175 pages; Mediæval, 30 pages; and Modern, 585 pages. The selections, which begin with Socrates and end with Martineau, have been made carefully, and while opinions will necessarily differ on details, the book makes available the more important ethical teachings of the wise men of the past. The defects are chiefly those of omission, and they occur not so much in as between the divisions into which the volume is divided. Between the ancient and mediæval sections there is a period of one century, and in passing from the latter to that of the modern writers we skip three hundred years. But these chronological gaps do not adequately represent the lacunæ at these points. It is more than a century from Plotinus to Augustine in substance of doctrine, and there is nothing in the volume to help us to the required knowledge. In a book that is 'virtually a history of ethics' and that adopts a method whereby 'the evolution of ethical thought is revealed' (preface) the reader has a right to expect that the story be adequately continuous not only within the main divisions, but also between them. This expectation is not met. In the case of Augustine it is only in one of its sources that his ethical teaching connects with the Greek philosophers, and from the point of view worked out within the Greek tradition alone it cannot be understood. Augustine is the product of many lines of influence, Greek, Jewish, Christian, Gnostic, Manichæan. Does any one think that the Middle Ages can be made, from the intellectual and moral standpoints, intelligible merely in the light of Plato and Aristotle? There is an ethical tradition that having its roots in the Old and New Testaments can be traced through the sub-Apostolic age to its greatest development in the Alexandrian School of Clement and Origen of which there is no recognition in the book before us. This is the more to be regretted because for Augustine this development is as important as is the theosophy of the neo-Platonic schools.

For what Dr. Rand has given us in the mediæval section we are certainly grateful, and not the least for the translation of Peter Abelard's *Know Thyself*. But here, again, one wishes for more than he gets, because, perhaps, what he gets is of so good a quality. The 800 years covered is represented by three names, and these same three names do

service for over 1,100 years if we carry our calculations up to the beginning of the modern section. Thirty pages from Augustine to Grotius is perhaps all that a popular vote would be willing to allow, but this is a case of weighing and not counting votes, and at a conservative estimate double the space might have been taken without offending the intelligent reader's sense of proportionate values.

Let me call the reader's attention to the fact that the main defects of the book are negative, and recommend to him the great value it has as a collection of the ethical wisdom of the past from which, perchance, some ray of light and hope may be struck for guidance and encouragement in the maze of our current moral stupidities.

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The Meaning of Evolution in Ethics. NORMAN WILDE. Intern. Journ. Ethics, 1909, XIX., 265-283.

Judgment of conduct by reference to an objective ideal could not be derived by evolution from animal action, but may have arisen by development away from such, through a series of slight changes, chiefly helped by natural selection, which allows conscience to survive because it is biologically valuable. This does not lead to a greater subjective morality; the moral life is not inheritable but must be the achievement of the individual. Our progress expressed itself in making life more than merely natural.

As in other sciences, the value of the idea of evolution for ethics consists chiefly in the exposition of the unity and continuity underlying all phases of life, bringing down moral judgment into the conditioned world. However, all this cannot explain the development of moral judgment.

Of the several attempts at such an explanation, the denial of the problem by determinism is due to a total disregard of the non-physical aspect of life, — while the mode of measuring the value of life by the degree of its complexity, supposedly in accord with such a tendency of evolutionary progress, still leaves open the question of the value of complexity. The claim for it of a better adjustment calls for a valuation of the environment, of life.

Spencer's attempt to establish a better standard for the value of life, found inadequate by the author, is similarly rejected by Leslie Stephen and S. Alexander, who propose to seek the measure of the value of conduct in the verdict of social selection, survival justifying a mode of conduct, probably, because it can only be due to its tendency towards

maintenance of the more or less stable social equilibrium, which should be the end of all moral conduct. Unfortunately this resolution deprives man of the means to weigh his actions at their outset, postponing the verdict, as it does, to the moment of their completion. It fails to be of any assistance when it is most needed, because it fails to recognize the individual judgment as the only determining factor of moral conduct; it assumes moral evolution as an external, automatic process, not passing it through the sieve of individual judgment. It puts up the survival of the fittest as the standard, when the problem calls for a determination of the meaning of the fittest. It commits the error common to all naturalistic theories, which neglect the conscious, rational factor, added by man to the process of evolution, for the purpose of bringing it in accord with his ideals; these therefore must be presupposed. Only moral judgment can explain evolution and not vice versa.

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ÆSTHETICS.

Esthetics. KATE GORDON. New York: Henry Holt and Co., 1909.

Pp. v + 315.

Miss Gordon has rendered a distinct service in compiling her little book on *Esthetics*. Hitherto there has been no work in English at all adequate to the needs of the instructor who conducts a brief course in this subject.

As a contribution to the science itself, one must look elsewhere for original thought. Even as a synthetic presentation of current views and experimental results the work lacks much in scholarly tone and careful analysis. The main point of view is based on Dewey's conception of emotion, and Hirn's notion of Art as emotion objectified. The theory is hardly a dominant feature, but one finds it cropping up now and then whenever the material permits a more or less adequate application of it. The dynamic nature of rhythm, physical, auditory and pictorial, is thus dwelt upon, while such contrasting phases of the esthetic as find exemplification in pure decoration, painting, architecture and sculptured forms other than those which clearly express emotional attitudes, leave the reader with a somewhat unsatisfactory explanation of their direct perceptual appeal.

Among the elemental esthetic factors only those are emphasized which lend themselves readily to a dynamic theory of explanation. Thus rhythm marks the key-note to the esthetic complex. It is maintained, for instance, that, 'the reason why we like a balanced better

than an unbalanced figure is explained on the basis of our imitative movements' (p. 185), and, since Stratton has disproved that eye movements themselves account for the beauty in regular curves, it is said to be 'still possible to maintain that the curve suggests smooth and easy movements in other parts of the body' (p. 171). No explanation for musical consonance is attempted, and the facts of proportion as evidenced in the relation of the 'golden section,' as well as the esthetic appeal of color and its relationships are treated only in an empirical manner.

In connection with the treatment of literature that standpoint is adopted which finds words and thoughts to be identical. "Thinking . . . does not first get done and then get translated into becoming words," Ach, Watt, Bühler, *et. al.* to the contrary notwithstanding.

Yet a carping criticism is surely out of place in reviewing a work so frankly unpretentious, and at the same time possessed of so many pleasing and useful features. Fundamental views and experimental results in the science of Esthetics are perhaps still too few to warrant any very objective treatment of its subject matter, and the author has made, on the whole, a careful discrimination and a happy selection of data. The book is written in a delightfully clear and entertaining style, much more in accord with the nature of the subject than is to be found in most treatises on the Science of Beauty. The well selected bibliographical references which are appended to each chapter, though largely to English works, will doubtless be found helpful to many.

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Ueber spontane ästhetische Empfänglichkeit des Schulkindes.

FRIEDRICH SCHMIDT. *Zeitschr. f. exper. Pädagogik*, VII., 119-131.

We have indicated here an interesting method for studying the esthetic receptivity of children. Realizing the lack of spontaneity, and the powerful effects of suggestion which have biased previous investigations of this sort, the author has endeavored to devise a means whereby these can be more completely eliminated. To this end he selected 45 children from the eight classes of the various Public Schools in Würzburg, choosing three representatives from each class: a bright, an average and a dull pupil. These were invited separately to his home. After a period of play with his own children, to relieve them of any embarrassment they might feel, he presented successively two pictures and requested the child to describe freely the impression made. These remarks were carefully tabulated.

The pictures used were a line drawing by Ludwig Richter representing two children in a forest, the one crying, the other wiping away his tears, and a colored representation of a ring of dancing children by Hans Thoma.

The results enable the writer to differentiate five stages in the evolution of esthetic receptivity: (a) A beginning stage which extends from the mere observation of isolated objects to the perception of relationships; (b) a second leading on towards interpretation and explanation; (c) a third leading from intelligent conception to imaginative supplementation; (d) a fourth leading in the direction of an attentive interest in an esthetic evaluation; and (e) a fifth stage which differentiates art from nature, giving a certain emphasis to the former.

The boys in the two lower classes showed no evidence of esthetic receptivity. The girls, however, evince more or less of the element of sympathetic empathy. From the third class onward the development is steady, yet anything in the nature of a real esthetic evaluation is exceedingly rare. The main result is declared to be the fact that the presence of a natural receptivity in some form of empathy does not at all parallel the intellectual capacity of the child, and therefore the esthetic education has another basis than that of the child's intellectual development.

One could wish that the author had given a more exact statistical account of his results, especially with reference to these evidences of empathy in children of various ages and capacities. However, the method appears to be a good one, and we may be thankful to the author for having opened the way to a more exact study of the natural development of the esthetic attitude.

R. M. OGDEN.

Das Grundproblem der Aesthetik in Entwicklungsgeschichtlicher Beleuchtung. MORITZ SCHLICK. Archiv f. d. ges. Psychol., XIV., 102-132.

The problem is the causal explanation of why an object appears beautiful. The solution is, as in other sciences, to be found in a correlation of related facts. Esthetic states of consciousness are products of development from more elementary states, and so their analysis must be psychogenetic. The method may be either experimental or historical, and the author here confines himself to the latter. Observation and experimentation with simple esthetic forms does not necessarily provoke simple states of consciousness, because of the freedom of association which these simple forms allow. Here only the historical method can determine the simplest, most primitive states, by investigations of animals and of primitive peoples.

The esthetic consciousness may be in such a state of development that the esthetic elements can be detected introspectively, or it may be too far differentiated for this, or finally, these factors may be partly detected and partly hidden. The first method applies to the study of 'indirect factors'; the second to the assumption of a 'direct factor,' *sui generis*.

The determination of what is beautiful may be reached by exhaustive experiments or by a process of elimination. We sharply distinguish objects which give pleasure because of their beauty and because of their usefulness. But the activities of animals involve those objects which are objectively useful, species-preserving. The problem then is: How can pleasure be excited by objects that are not thus useful? It must have arisen in some way from useful activities. When an individual viewed an object which was no longer useful to him because all his needs were satisfied, the object would associate the pleasurable feelings formerly connected with it; it would be agreeable. The object is beautiful then in proportion to the closeness of this connection.

The question is thus raised: What was it that originally produced this state?

1. Apparently it was not the form of the body, for in animals the strong sexual attraction is most probably purely physiological, not esthetic, while among savages tattoo marks, despite their manifest ugliness, are used for adornment.

2. The satisfaction in deeds of skill arose obviously from the needs of adaptation in the struggle for existence.

3. Objects of food, as fruits, produce the same results.

4. Appreciation of the beauty of nature belongs to a later stage of development. It depends on many associated factors. So, *e. g.*, on looking at a beautifully colored sunset through a glass window, the beauty vanishes as soon as one imagines himself looking into the window as if it were simply a lighted and brightly colored plate.

Primitive man's motives for representing objects were not uniformly esthetic. Interest and religious motives predominated. When the individual had become better adapted, feelings aroused by sensory stimuli gave place to imaginative ones which, although of less immediate use, served as an outlet for activity and as a means of avoiding displeasurable feelings. It is this assumption of the characteristic 'play' attitude, which the author regards as the essential determinant for the esthetic consciousness.

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The Problem of Beauty. HUGO MÜNSTERBERG. *Philos. Review*, XVIII., 121-146.

Æsthetic enjoyment is commonly interpreted only as a complex pleasure; in this respect all theories agree, no matter how divergent they may be as to the links in the chain between the sensory stimulation of the subject and the resulting pleasurable emotion. Thus far, physiological psychology has failed to lift the problem above the level of individual experience. The attempt is here made to raise it to a position of necessity, by making it the direct outcome of the universal characteristic of the will and its world-regulating function, attributed to it by voluntaristic psychology.

A work of art is not conceived merely in its physical and psychological elements, but is grasped as immediate experience of the subject who wills in harmony with it. Because of his desire to seek a real world in the chaos of impressions,—the only condition for the existence of a world at all, as well as the only logical starting point for an interpretation of the world in terms of æsthetic or other values,—man finds pleasure in impressions assisting him in the self-imposed task of understanding the world; all that is a fulfillment of the will, is a source of satisfaction. The world-shaping will is an eternal value and gives rise to the realization of the beautiful, which is never such because it is agreeable, but because it is perfect, “because every demand which is raised in its manifoldness is completely satisfied by the will of the other parts. The objective satisfaction resulting from the will to have such a perfect self-agreeing world is the only æsthetic attitude.” This attitude is, of course, not confined to works of art. To find an inner agreement in the outer world, it must come to us as a will, as only intentions can agree; it must therefore cease to be material for our own practical work, and be simply an object for our interest. This leads to the isolation of art from practical events, its apparent unreality, which is attained by the suppression of some essential element of reality, as that of the third dimension by the painter, or of color by the sculptor.

Corresponding to man's three spheres of experience, to the outer world, to other individuals and to his inner personality, there are different forms of æsthetic attitudes. Music expresses the harmony of ourselves, as poetry unveils the harmony of mankind, and fine art harmony of nature. In literature the three spheres of experience find expression as epic, drama and lyric poetry.

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The 'Perceptive Problem' in the Æsthetic Appreciation of Single Colors. EDWARD BULLOUGH. Brit. J. of Psychol., II., 406-463.

The object of this set of experiments is the investigation of a problem of color appreciation. "Expressed in a general way, the perceptive problem in the æsthetic appreciation of single colors means the problem of the differences existing in the perception of single colors, in so far as such perceptive differences condition differences of æsthetic effect."

The problem falls into two chief parts: I. The '*aspects of color*,' i. e., their objective qualities. II. The '*perceptive types*,' i. e., the classification of his observers on the basis of the kind of aspect or aspects by which they are influenced when in the presence of colors.

I. From the evidence of the subjects, the author has been able to classify the '*aspects of color*' into four groups. The first group represents the '*objective*' aspect. The remarks of subjects belonging to this group refer to such peculiarities of color as its saturation, its brightness, its delicacy, its poorness. The second group, termed the '*physiological*' aspect, represents features producing certain effects on the subject, such as stimulating, soothing or temperature effects. The third group represents the suggestive power of color, or its '*associative*' aspect, and the fourth group the '*character*' aspect, which means the appearance in a color or the expression by a color, of what in case of a human being would be called his character, mood or temperament. This last group represents by far the most complex side of color appreciation.

II. The '*perceptive types*' correspond to the main groups of color aspects and may consequently be termed the '*objective*,' the '*physiological*,' the '*associative*' and the '*character*' types.

This investigation leads the author to the distinction between the '*agreeable*' and the '*beautiful*.' This distinction consists in the difference of position which the object occupies in our consciousness. When a thing is agreeable, *we* occupy the center; while in the case of beautiful objects, it is the *object* which stands in the focus of attention.

On the basis of this distinction the *pure* '*physiological*' type should be regarded as the type of lowest æsthetic value. To subjects of this type, colors are merely agreeable. The '*objective*' type represents a higher degree in the scale of æsthetic values owing to the far greater emphasis laid on the color impression itself. Above this type is placed that of '*fused associations*,' and higher still the '*character*' type. It is only in this last type that there is a centralized unification

of the color and the affective reaction. The freedom of this type "from purely personal factors, from accidental memories and irrational associations, and its essentially emotional tone invest this type with a kind of objective reality, which is generally characteristic of æsthetic experiences, and stamps this form of color-appreciation as the *æsthetic appreciation par excellence*."

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INDIVIDUAL TYPES.

Individuelle Verschiedenheiten in der Kunst. R. MÜLLER-FREIENFELS. *Zeitsch. f. Psychol.*, L., 1-61.

The author proposes to classify individual differences, which play so important a part in art, and to try to detect regularities among types which have so often conflicted with each other. A purely esthetic classification is based on these points: I. The kind of imagery and sensory activity which predominates in the individual; II. The kind of feelings sought by the individual in art; III. Whether novelty or familiarity is sought. The material is taken from written expressions, or from the artistic work, of creative artists, but expressions of art appreciation are equally considered.

I. The two great reaction types are the *sensory*, in which the emphasis is on the material worked with and the effects of its combinations, without any tendencies to associate ideal factors or to find a meaning; and the *imaginative*, in which reproductive tendencies play a large part. These appear in the following special forms, which the author treats in detail: (1) sensory-motor, (2) sensory-auditory, (3) sensory-visual, (4) imaginative-motor, (5) imaginative-auditory, (6) imaginative-visual, (7) verbal-imaginative.

1. The dance was the most primitive motor art form. Its rhythm was an economical expression of body activity. It was closely bound up with music and in music rhythm remains the essential feature for most people. In some, especially in children, poetry is most striking for its rhythmical character. Some persons on viewing a statue experience bodily adjustments with reference to its shape and pose. Motor elements enter very generally into the appreciation of spatial effects. Hildebrand makes the perception of space the essential feature of plastic art; to it color is subordinate; this is an extreme case, but it is strikingly characteristic of the sensory-motor type.

2. Appreciation of music in the majority of people is almost entirely motor: the sounds and rhythms call forth motor innervations

with few associations and little judging activity. The true music lover, however, is of a more pronounced auditory type. An example is Hanslick, who declares that the only true music is 'absolute music.' Auditory factors may be in combination with a judging activity which is in some cases (*e. g.*, Herbart) purely cold and analytical. Specialists in harmony or in melody, and the importance of assonance and alliteration in poetry are noted here.

3. The sensory-visual type is shown extensively in animals and primitive peoples, and, in modern times, especially in women and artists. For this type it is largely the color in pictorial art which appeals. Here belongs also the visual effect of the printed page, of dance spectacles as well as the interesting phenomenon of 'audition colorée.'

4. There were originally strong imaginative factors — of war, sex, religion — bound up with the dance. Mimicry and dramatic poetry developed out of these as a natural extension of the activities brought to expression there. Plastic art represents the muscular innervations corresponding to the conscious state of the organism represented: it is transfixed mimicry — a snapshot of a moment in the action. On observing the work of art similar psychic processes recur. There occurs also an extension of the properties of the statue to the feelings connected with it. In music, the motor element may bring a supplementary acting element, as with Wagner. Poetry contains abundant suggestion for mimicry.

5. Auditory imagery is rarer than the other types. It offers a lesser range of idealistic associations but permits the presentation of impressions, as in the 'tone-painting' of program music. Something quite similar also exists in poetry.

6. The imaginative-visual type draws its material from painting and the plastic arts. The question as to meaning of a work of art, whether it shall be 'sensory' or 'imaginative' depends purely on the type of person who is viewing it. Each person likes what fits his 'reaction mode.' So poetry may be underestimated by those who read visually and thus tend to make it static.

7. The existence of the imaginative-verbal type arises from the fact that the principal object of literary art is to express thoughts and concepts. Words serve this purpose. They may be of motor, auditory or visual content, yet at best they are but vehicles for ideas and meanings which transcend them and carry us into the realm of the imaginative. In music, dramas and songs, as in certain forms of pictorial art, the content is largely a vehicle for thought and meaning.

II. While primitive man was excited to feeling mostly by intense stimuli, civilized man delights in manifoldness and newness, nuances and shades. So, in music, rhythm gives way to melody and harmony in importance, and in painting, color nuances, not intensities, are sought. There are individual differences in the quality of feeling sought. Some seek preponderatingly pleasurable feelings, others unpleasurable ones. This varies with certain individual conditions, as neurasthenia. It varies with different periods of history, and is in part responsible for the struggle between naturalistic and idealistic world conceptions.

III. One can distinguish those looking for *depth* of impression in a work of art from those looking for *newness* and *manifoldness*. In the first class were the Greeks and the Mediævals, when they opposed any change in conventional myths and beliefs for art purposes. There is a kind of alternation of periods of elaborating old established material, and of striving for new things. The corresponding work of art is, in the one case, concerned with material already present, or that created by immediate needs, and devotes especial attention to the method of treatment; in the other case, interest is more particularly directed to the mass of new material, not to the depth of impression.

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Studi sui tipi rappresentativi. RODOLFO MONDOLFO. Riv. di filos., 1909, XV., 38-92.

This article presents an argument for the presence and prominence of kinæsthetic elements in all forms of representation. The reasoning is based very largely upon the author's introspection, and not upon a consensus of introspection from a number of observers, as might be expected from the title.

Stricker was the first to mention the importance of movement in imagination though he did not fully appreciate its significance in visual imagery. This Mondolfo takes up at considerable length, emphasizing the part played by motor functions in the clearness with which a visual image is recalled. For example: the effort to recall the course of the river Po, as shown upon a map, or to recall the appearance of a printed page, involves both speech motor activities and appreciable eye movements. The so-called Visualizer is in reality Visual-motor.

In auditory representation 'inner speech' plays a very necessary rôle. "It is not possible for me to think of a word, a musical motif, or a noise without a series of minute movements accompanying them; —especially in the tongue, jaw and glottis," says Mondolfo. Further-

more, the vividness and distinctness of the representations are proportional to the energy and extent of the movements. This inner speech is a part of the act of reading. In languages where the spelling is frequently unlike the pronunciation the attention, acting 'synthetically' rather than 'analytically,' suggests the pronunciation to the inner speech. In this way many misspellings may be passed over unnoticed; the visual image being supplanted by the motor and auditory factors of the inner speech.

Imagery aroused by reading or listening to an address is vague, and dependent upon phrases rather than words. The sentence, "Peter met Paul and gave him a push," brings to mind no clear image of a Peter or a Paul. It does arouse a dim kinæsthetic impression of contact and of pushing. So, too, in the sentence "All antecedent phenomena which cannot be eliminated without also eliminating a consequent phenomenon are united in a causal relation," Mondolfo finds no clear visual imagery. There is (for him) a visual-kinæsthetic image of a movement toward the left, then a feeling of moving or sweeping something aside, which corresponds to the term 'eliminate.' This is followed by a feeling of making a motion in the opposite direction, which corresponds to the term 'consequent.' An image, partly visual and partly kinæsthetic, of something that is tied, or a hand fastening a parcel, is called forth by 'united,' the feeling of exerting a pressure seemed to correspond to the word 'causal.'

These feelings of movement are localized in the eyes, tongue and jaw, primarily. They occur very rapidly in one's reading, and give rise to images of relation.

In learning to talk various motor and sensory processes are called into activity. These processes do not remain in the same proportion to each other as the child matures. This gives rise to Mental Types. Such processes, which have often been studied in aphasia, are intimately related. In some cases the total or partial absence of one may be atoned for by the substitution of another.

Mondolfo gives much space to a discussion of pseudohallucination, which is rather aside from his main argument. His own introspection shows an unique ability in inducing illusions of sight and hearing. In the effort to induce illusions he found that movements in the eyes, tongue, throat, etc., helped very materially.

Referring to Berkeley's theory of vision, Mondolfo declares that the localization of an image, for him, depends not only upon the kinæsthetic sensations in vision but in other senses as well. "The spatial projection of images is accomplished or tends to be accom-

plished, in the direction which the tactual and kinæsthetic determine." These tactual and kinæsthetic sensations are located in the sense organs and in the muscles of the face and neck.

In concluding Mondolfo points out that there are no images formed by kinæsthetic elements alone. There must be some other sense also contributing. There can be no purely Motor Type, therefore, as there may be a Visual or Auditory Type.

H. C. McCOMAS.

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INTROSPECTION.

Comment fonctionne mon cerveau. Essai de psychologie introspective. H. BEAUNIS. *Revue Philosophique*, 1909, LXVII., 29-40.

M. Beaunis offers his article as a contribution in a much neglected field, introspection upon normal mental life. He feels that there is great need of a comparative study of individual differences in psychic processes. This can be done if those who have the ability to introspect accurately will coöperate. Unfortunately many gifted minds are unable to describe their simplest acts. As an example of what is needed M. Beaunis presents a sketch of his own mental life.

He finds that a very large part of his mental activity cannot be called *thinking*, for by thinking he means the higher activities of the mind, comparing, judging, etc. The routine duties of the day do not call out these higher powers. The attention is not concentrated and memory holds hardly a trace of such experiences. They shade off into his 'Nuit psychologique' which is 'a rudimentary form of thought.' 'La plupart du temps je constate que je ne pense à rien.' The fruits of his thinking are largely from the unconscious working of his mind. When a problem becomes involved and difficult he ignores it for hours, or even days. When he resumes work upon it the difficulties are easily overcome. Much time is given to reflection, but when the time is ripe for assembling the results of his thought he finds the work goes forward quickly and spontaneously. It is best accomplished after a sleepless night, when the mind is unusually alert.

Perhaps the cue to M. Beaunis' mental life is to be found in a 'certain physical lethargy' which led him to avoid active sports and made for a sedentary, lazy life. This is his own verdict. Also, he has always suffered from his severe myopia. This affected his 'acts, character and manners.' With this in mind it is not hard to understand his willingness to let the greater part of his mental life lapse into 'la nuit psychologique,' and to interpret his last words of advice to brain workers, "Laissez travailler l'inconscient: il ne se fatigue jamais."

H. C. McCOMAS.

EFFICACY OF CONSCIOUSNESS.

On the Efficacy of Consciousness. THADDEUS L. BOLTON. Journ. of Philos., Psychol. and Sci. Methods, VI., 421-432.

In the development of life from the lower to the higher conscious forms, the need of quick adjustments of movements to stimuli is not entirely met by the plasticity of instincts. The species as well as the race must be adapted. Consciousness alone meets the need of this individual adaptation, and from this point of view the author traces the development of consciousness.

When objectively considered, consciousness may be correlated with the existence of the muscular *tonus*, which is sustained by the circular activity of the efferent nervous processes and consequent afferent kinesthetic impulses.

In attention, objectively considered, some organ of the body is adjusting itself in preparation for functional activity while the general muscular organism supports it. One organ tends to become prepotent. Correlated with this in consciousness is an image of an object, which the author would explain as the activity of a certain sense organ setting in operation centripetal and centrifugal currents which must rise above the level of the 'tonal currents.'

An attempt at voluntary movement appears before the performer as an image, that is, 'it is charted,' and the movement as performed is continually checked according to the chart or plan. The *fiat* is a plan which lies back of this plan of movement.

The learning process is like voluntary action in that it involves a chart of this sort. This chart consists of the new images that enter the stream of thought through perceptions. New movements are inaugurated either conceptually or vicariously. Of movements inaugurated in these two ways the latter type prevails in most cases of animal learning; the former type is characteristic of higher forms. This conceptual learning — the representing by an image of an act about to be performed — is the chief characteristic of mind. The peculiar efficacy of consciousness lies in the fact that preparation for the act is made beforehand. The process is summed up in the following steps: "The shuttle-like activity of the afferent and efferent currents in maintaining muscle tone, the heightened intensity of these in the attitudes of attention, their steady maintenance in the formation of the image, the independent upholding of the image while the motor results of movement are checked up on it, the image as a chart by which activities are directed, the image as a further plan by which other images are

charted in the resolved acts, and the image as a representation or conception by which various actions are carried out in succession."

KARL T. WAUGH.

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CHILDHOOD AND PRIMITIVE MAN.

Spontaneous Constrctions and Primitive Activities of Children Analogous to Those of Primitive Man. R. A. ACHER. Amer. J. of Psychol., 1910, XXI., 114-150.

This is a contribution to the data of child interests and instincts and an attempt to show their relation to the activities of primitive man. The material was gathered by a questionnaire which was answered by the students of several normal schools who reported their observations of about 450 boys and girls. The following are among the topics and the results obtained.

Blocks. — From the study of the play with blocks, as in drawing, we see the child's willingness to be content with the type of construction rather than to try to copy more simple and familiar forms. *Stones.* — A detailed report is given on the things made of stone, collections of stones, uses made of stones, etc. These uses are comparable with the rôle played by stones in man's development. *Snow.* — The author suggests that nowhere do we have a better opportunity to study the child's crude imagination and primitive constructive power than in snow constructions. *Points and Edges* seem to be of greater interest to boys than to girls. Nearly three-fourths of the children reported upon were boys. The *Attitude towards Clothing* shows how the child longs to come in touch with nature and so recapitulate the race by going bare-foot, running naked in the rain, etc. Observations on *striking* likewise show the tendency to recapitulate racial interests.

In conclusion the author calls attention to the principle stated by Tyler 'that the fixedness of a tendency is roughly proportional to the length of time during which it has characterized the race,' and suggests that the development should be along the lines of racial inheritance rather than along the lines of recent social inheritance.

UNIVERSITY OF WISCONSIN.

W. D. FULLER.

DREAMS.

Ueber Lesen und Schreiben im Traum. E. MEUMANN. Arch. f. d. ges. Psychol., XV., 380-400.

Meumann gives here the results of his introspection of dreams of *reading* and *writing* compiled during several years. Some dozen or

more of these dreams are recorded as taken down at the moment of waking, and from them he draws several conclusions.

Lese- und Schreibträume occur rarely (dreams of writing less often than of reading even), and this rarity is the more remarkable when we consider the great rôle that such activities play in our normal daily life. By way of explanation he suggests (*a*) the very commonness of such activities causes them to be ignored in dreams; (*b*) these activities are normally most complex, and even their representation in idea would presuppose a considerable innervation of many perceptual complexes at once. This is contrary to the general fact that in dreams our mental life is greatly reduced and that it tends to express itself in simple ways, by pictures and ideas.

In *Leseträume* the chirography is characteristically clear and sharp. In content it sometimes happens that the text is meaningless: either a foolish combination of letters as: 'GTNBLTT,' or a combination of rational enough syllables or words to form a senseless word or sentence, as 'Kitchener Don Rhodes.' Such dreams are usually accompanied by an unpleasant affective tone engendered by the inability to grasp significance of words, and waking results. It is more usual, however, in *Leseträume*, that the text is relatively sensible; in the dream it is clear and understandable, so that pleasure or surprise may cause awakening—often then, it is true, to find that the total phrase that seemed so significant is without meaning. Of this class the following is an illustration: "Denn unser deutsches Kleid strömt von fröhlichen, amüsanten Falten, obgleich man in Rom ist."

Dreams where the subject *writes* are exceedingly rare, as indeed are most dreams of motor activity. This is possibly due to the fact that the muscles are normally quiescent in sleep. The sense of the content varies in a fashion analogous to that of the 'reading-dreams,' sometimes being vague or senseless, but usually consists of the grouping of sensible words into short sentences.

In both classes of dreams it is difficult to get accurate data, since the memory of the words pales with great rapidity, and it is necessary to repeat them in memory several times before attempting to get up and write them down. The author explains this quick vanishing of dreams by the fact that the intensity of the psycho-physical excitement in dreams is at a minimum.

Meumann compares the form of wording and the method of expression with the phenomena of speech disturbance described by Kraepelin. The author's dreams are of actual writing and

reading, and do not appear as a mere variation of speech-dreams. The latter appear only subordinately. In Kraepelin's cases, on the other hand, linguistic motor ideas play the chief rôle, reading or writing being a secondary phenomenon. While for the author *Schriftbilder* acquire 'hallucinatory independence,' for Kraepelin they never do. Doubtless we have to do here with an individual difference of reaction-type.

Both Kraepelin and the author find speech dreams common, though in general sight-ideas or images are more usual than sound-images, due possibly to the fact that the acoustic centers may be more depressed in sleep than the visual. (As opposed to this view cf. Meyer: 'Zum Traumproblem,' in the *Zsch. f. Psychologie*, noticed below.) Auditory perceptions (*wirkliche Gehörs wahrnehmungen*) are rare in dreams, usually distinctly unpleasant, and causative of waking. They seem to have an abnormal, hallucinatory character beyond other dreams, and are very probably engendered by excessive fatigue.

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Zum Traumproblem. SEMI MEYER. *Zsch. f. Psychol.*, LIII., 206-224.

The author is fundamentally opposed to the current explanation of dreams as hallucinatory in character. Such an hypothesis would demand that certain definite brain areas be abnormally excitable in the dream-state, and this does not appear at all likely to be the case. By a study, in part of his own dreams, he is led to a more plausible explanation: *the relativity of psychic intensities*, as he terms it.

The nature of an hallucination is seen when we consider perception, which is the basis of all hallucinations. A perception is defined as a 'definite arrangement in space and time, of a number of simple sensations.' Perceptions fill the moments of our ordinary day: our thoughts are spatially and temporally oriented. The data of dreams, on the contrary, are ideas (*Vorstellungen*), concrete pictures. What we perceive by day are relationships, independent of memory pictures; the latter may occur, but as by-products only; they are non-essential to the thinking process. By day we think (*denken*), by night we picture (*vorstellen*), one concrete idea following another by laws of free association. Such ideas by day never lead to hallucination, for the very essence of hallucination consists in mis-perception, a breaking away from associations, and enforcing upon the subject a distorted, but spatially and temporally definite combination of sensations. In dreams these oriented perceptions are utterly lacking.

Further the characteristic of great vividness appears to be common to dreams and hallucinations alike and to distinguish both from the waking state. But vividness corresponds solely to intensity of excitation, and intensity is a strictly relative affair. Now it is in a consideration of this relativity of psychic intensities that the solution of dreams, as distinct from hallucinations, appears. Why do dreams appear so vivid?

Vividness or intensity, being a matter of degree, depends solely upon comparison of the given with the standard, a process which is going on, more or less consciously, every hour of our waking day. Two objects given simultaneously are inevitably compared and assessed as being of such or such magnitude. But in dreams, due to the fact of free association, two ideas are juxtaposed that have never come together in real life, hence have never been compared — and distortion follows. Further, dream pictures are indefinite and hazy, and are of *really less intensity* than memory pictures of the day. Unrectified by time and space determinations, we take them for real uncritically: we simply neither doubt nor assert their reality, until perhaps we begin to awake. In hallucination, perceptions are always definite. The 'voice,' *e. g.*, is fully oriented in time and space relationship; it is clear and usually persistent. The intensity, then, is a purely relative matter, and depends not upon its psychic associates among the ideas for estimation, but may be varied almost indefinitely by the greater or less strength of the actual sensations, whose intensities themselves are in turn equally indeterminate in dream-life, and for the same reason.

In sleep no affective-tone is present. If a sensation begets a feeling tone — as for instance a slight movement in bed might be associated with an idea of falling, causing the emotion of fear — we awake. The reason for this is clear if we regard every feeling as the coming to consciousness of an impulse which demands some sort of attention and motor reaction. By day our actions are controlled by such impulses working through feeling-tones: while in deep sleep, sleep proper, they never occur; there our impulses are quiescent — or else we awake. Dream-sleep, which is mid-way between complete consciousness and non-consciousness, is characterized by lack of attention, lack of goal for our ideas, cessation of impulses and feelings. To this state the day-dreams are analogous.

All this is in opposition to the much-discussed contention of Freud that dreams *are* guided by unconscious impulses and that the threads which link dream associations are just to be found in our affective life. Freud professes to be able, albeit by giving an extraordinarily new

interpretation to his data, to bring to light forgotten, affectively-toned, repressed experiences or wishes of his pathological patients from analysis of their dreams. The author does not discuss at length this view point, which he characterizes as 'captivating the psychologist through the manifoldness of association possibilities that the author has discovered,' but he adduces in addition to his general thesis certain considerations which he seems to think, *a priori*, make Freud's interpretations unlikely.

Every dream is conscious; it is a disturbance of sleep, a tendency to awakening, only it is consciousness acting apart from temporally and spatially determined percepts, following rather, much as our day-dreams do, a free association of concrete pictures.

ELLIOTT FROST.

VISUAL SPACE PERCEPTION.

Eine Methode zur experimentellen und konstruktiven Bestimmung der Form des Firmamentes. R. F. POZDĚNA. Zeitschr. für Psychologie, LI., 200.

The experiments were made with an artificial moon at a fixed distance from the observer's eye and at the same elevation as the moon. The angle in azimuth is described as 'möglichst geringes auf die Seite' but no measures are given. The artificial moon was provided with a stop plate diaphragm and brought to the intensity and color of the moon by screens of white and colored paper. No mention is made of a check by a null method. The observer's head was fixed but the direction of regard apparently left to instructions.

The observations gave 2.6 : 1 as the mean ratio of moon's diameter judged on the horizon and at culmination, with a wide range of dependence on subjective conditions, reaching 3.83 : 1 under the influence of a nervous headache.

Among the details of the experiment the suggestion of an iris diaphragm and the use of a clock rather than a sextant to determine the altitude might be of value in lessening the work of the operator.

For the psychological problem, since the limiting case of superposition and of juxtaposition of about 700 moons on a great circle could only lead to the geometric concept and not to a psychologic concept, the experiment should be extended to include (1) alternate covering of the two objects, (2) variations in altitude and azimuth with measurement, (3) as a control, experiments with two artificial moons.

The mathematical treatment of the problem of apparent form is

unnecessarily laborious. The question as to whether a curve can be constructed with ruler and compass, interesting from the abstract point of view, should not be allowed to interfere with a practical problem.

R. P. BAKER.

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Die Gestalt des Himmels und Vergrößerung der Gestirne am Horizonte. HANS HAENEL. *Zeitschrift für Psychologie*, 1909, LI., 161-199.

After reviewing the current theories the author proposes the following solution: The heavens may be divided into two fields: (1) that part which is near the horizon, and (2) all that lies above this band near the horizon. In the former the perception of distance is definite, whereas in the latter it is indefinite; and herein lies the explanation of the illusion. When we see the moon, *e. g.*, at the horizon, it is seen as being at a finite distance, whereas when we look at it higher up there is no such perception of distance; or it is thought of as being at 'infinite distance.' Consequently, the former is pronounced large and the latter small.

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Zur Lehre von der Lokalisation im Sehraum. STEPHAN WITASEK. *Zeitsch. f. Psychol.*, L., 161-218.

The problem investigated by the writer is a determination of the relation between 'corresponding points' in binocular vision and subjectively similar points in the two visual fields in monocular vision. The apparatus is very simple, but apparently accurate. It consists essentially of blackened tubes arranged to shut out all light except that from a small circular opening directly in front of the pupils. The visual field is of milk-white glass, upon which was placed a small black mark, the point of fixation.

W. finds that 'corresponding points' are not similar points when the eyes function separately. The right monocularly-similar point is to the left of the binocular point, and vice versa for the left eye. A system of three points in each eye is needed for the two functions. Hering's apparent movement of the line of sight when one eye is used and its fixation changes from a distant to a near point or the reverse, does not hold under the above experimental conditions. The law of an identical line of vision for both eyes cannot be extended unqualifiedly to the eyes when functioning monocularly. Synchronous eye-

movement theories will not account for this difference in monocular localization. The author inclines to a modified form of the projection theory.

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SATURATION AND BRIGHTNESS.

Ueber die Gefälligkeit der Sättigungsstufen der Farben. A. MINOR. *Zeitsch. für Psychol.*, L., 433-444.

This experiment was devised to test with larger area than heretofore Cohn's results regarding the relative preference for saturated over unsaturated colors. The increased area was produced by projecting the colors with a lantern on a white screen, a fairly uniform circle of about 1 m. diameter being thus obtained. Attempts at using colored solutions were unsuccessful. The experiment was therefore carried out, using gelatin plates of seven different colors from red to violet. The decrease in saturation was produced by combining these with gray solutions so devised that the relative brightness should remain constant. In each instance but three fixed stages of saturation were used.

The reactions were to be immediate, without reflection or comparison, and were to be expressed in these five terms: very pleasing, pleasing, indifferent, displeasing, very displeasing. * The subject was then questioned as to associations, feelings and judgment processes. The saturated colors were in each case found to be more pleasing than the unsaturated, though in the case of green none of its stages was judged to be pleasing. The judgment is influenced by the pleasingness of the colors themselves, the bodily conditions, the mental state, and by associations.

W. S. ADKINS.

UNIVERSITY OF TENNESSEE.

Ueber die heterochrome Helligkeitsvergleichung. HERBERT S. LANGFELD. *Zeitsch. für Psychol.*, LIII., 113-178.

The experiment consisted in exposing to the subject gray and colored light whose brightnesses were to be compared. The light was in the main experiments reflected from a Nernst lamp on to Hering colored and gray papers. The intensity of the gray surface was varied by changing its inclination, this being done till the color and the gray appeared of equal brightness.

The preliminary experiments were to determine whether the subjects obtained different results depending on the method of comparison used, and to determine what methods were used. Comparisons of

brightness carried out without a definite method of comparison but with a mere impression of brightness gave irregular results. The results become comparatively regular if one either attends to the illumination abstracting from the color, or concentrates upon the color as such.

The main experiments aimed at separating out a single one of these ways of judging and continuing the experiments till the subjects reached constant values. With practice this separation became quite definite in most of the four subjects. Using one method of judging consistently, the results became constant; using no especial method of judging, first one then the other dominates, the results varying accordingly. Probably the two work together, at times producing compromise values. With one exception, in which the subject confessedly failed to use the method of abstraction rigidly, the results showed much brighter grays when the subjects concentrated on the illumination than when they concentrated upon the color tone.

A second series of experiments was carried out, in which spectral light differing in wave-length by 5μ was exposed to one subject, the author, in the two fields of the Helmholtz color mixing apparatus. It was found that the values depended clearly on the method of comparison, but that estimates with attention on the illumination gave somewhat darker results than those obtained with attention fixed on the 'density' of the color.

In the last series, with a number of unexperienced subjects, the instruction was simply to judge as to the brightness. The results are very irregular and the protocols show the variable influence of the color tone on the judgments of brightness, and indicate that practice is needed to set up a constancy of results.

In comparing the relative judgments for various colors it is interesting to note that whereas with consciousness upon the color tone the order of brightness usually comes yellow, orange, red, with abstraction from color it was sometimes found that the order was reversed.

The results indicate that practice yields a fair constancy of values but that these values vary markedly according as the subject concentrates upon the illumination — in the case of unsaturated colors, upon the gray which seems to enshroud the color — or upon the color tone, its pigment or density.

W. S. ADKINS.

DISCUSSION.

THE POINT OF VIEW OF GENETIC PSYCHOLOGY.

At present the special function of a writer of genetic psychology is not so much to present new things as to organize the known facts in such a way as to throw light on the problem of mental development and prepare the way for the future growth of the new science. No one can, therefore, read or review intelligently a book on that subject without clearly recognizing this purpose which distinguishes genetic psychology from ordinary psychology. It is true that ordinary psychology is rapidly changing so that it is becoming more genetic and broadening into a science of behavior instead of a science of consciousness, yet a book that professes to be a genetic psychology, especially one that is intended to emphasize the objective facts and to be followed by another volume dealing more fully with the subjective facts, cannot be judged by the same standards that are applied to the ordinary psychology.

Although the word 'genetic' has been used somewhat loosely in the past it does not seem as if psychologists of the present day would need to have attention called to its meaning, yet, when a reviewer criticizes a genetic psychology as was done in the *MAY BULLETIN*, in a way that gives no indication of any appreciation of the special purpose of the work, some sort of an explanation seems needed. The chief objection made is that the 'neurological background obtrudes almost constantly,' yet the sub-title of the book and the preface clearly indicate the author's purpose to give as far as possible an objective view of intelligence and its development, in such a way that a common ground may be found for the arrangement of biological, physiological and psychological facts.

The book has more appropriately been criticized for not showing in more detail the relations of the physiological structure to behavior. The author, in fact, did spend a good deal of time looking up such facts, but found it impracticable to gather them from the technical publications in which they are only to be found and get them in shape to use in this brief and semi-popular work.

The important point is not whether the book in question is, or is not a good one, but that the special purposes of a genetic psychology should be recognized. It is also important that the narrow view of psychology as concerned with conscious states only should not prevail. A psychology that considers young children and animals as well as adults must be a science of behavior and to be complete must include

the facts of physiological structure and neurological processes, as well as those of consciousness. A physiologist would no more think of studying an ant's behavior without examining its sense organs and other structures, than would Professor King of studying the religious behavior of men without attempting to make any inquiry into their conscious states, and no comparison can be complete that does not show the bearing of both classes of facts on behavior, although we may at present know little of the conscious states of the ant and of the neurological processes in man that will aid in explaining the conduct of each.

A description of the neurological correlates of mental activities has probably been given as an explanation of the mental states by some popular writers, but it should not be inferred that the writer of a genetic psychology holds such a superficial view, especially when it is his purpose to show, not that the facts in one field explain those in another, but that the facts from the several fields of biology, physiology and psychology must be collected and correlated before a complete science of behavior can be developed. It was to help this process of bringing to bear upon the problems of behavior the researches in several fields of science that care was taken to outline the probable correlations, although some things presented may seem trite and the filling in be left to special workers. Certainly no thoroughgoing scientist will refuse to consider all the facts bearing on behavior, especially when he is working on comparative or genetic psychology. §

It is due to the readers of a scientific magazine that they should be informed in reviews not merely as to what a reviewer thinks personally of a book, but as to the author's point of view, purposes and manner of carrying them out. This is especially important in a new field like genetic psychology which must be judged on a different basis than other books in the same line with a different purpose.

E. A. KIRKPATRICK.

FITCHBURG, MASS.

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- Un nouvel état de conscience; la coloration des sensations tactiles.* MARIE JAËLL. Paris: Alcan, 1910. Pp. 111. 4 fr.
- An Epitome of the Diagnosis and Treatment of Nervous Diseases including Bromide Therapy.* H. I. BERGER. St. Louis: Peacock Chemical Co., 1910. Pp. 42.
- Death and Resurrection.* GUSTAF BJÖRKLUND. Trans. by J. E. FRIES. Chicago: Open Court Publ. Co., 1910. Pp. xix + 205. \$1.
- Theorie der kinematographischen Projektionen.* KARL MARBE. Leipzig: Barth, 1910. Pp. 80.

NOTES AND NEWS.

THE Fourth International Congress of Philosophy will meet at Bologna during the Easter holidays, 1911, under the presidency of F. Enriques. One of the eight sections will be devoted to psychology, and a special discussion has been proposed by E. Durkheim on 'Judgments of Value and Judgments of Fact.'

THE Sixth Annual Meeting of the Southern Society for Philosophy and Psychology will be held at Chattanooga, Tenn., December 27 to 29, in conjunction with the meetings of the Southern Educational Association.

PROFESSOR J. MARK BALDWIN has been unanimously elected corresponding member of the philosophical section of the French Academy of Moral and Political Sciences, to succeed Professor William James, recently elected foreign associate.

THE June issue of the BULLETIN, dealing especially with Experimental Psychology, was prepared under the editorial care of Professor J. W. Baird.

THE following are taken from the press :

DR. NOAH K. DAVIS, professor emeritus of philosophy in the University of Virginia, has died at the age of eighty years.

PROFESSOR J. H. CREIGHTON, of Cornell University, has received leave of absence for the coming year. Professor G. H. Sabine, of Stanford University, will supply Professor Creighton's place. Professor A. W. Moore, of the University of Chicago, will conduct courses at Stanford in Professor Sabine's place during the second half-year.

DR. C. LLOYD MORGAN, professor of psychology and ethics at University College, Bristol, England, has been presented with a library of valuable books by the staff and students of the college as a testimonial for his long service at the institution.

MR. L. W. COLE, recently instructor of psychology in Wellesley College, has been appointed professor of psychology in the University of Colorado.

